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EVOLUTION OF AN INDUCTION PROGRAMME

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ABSTRACT

The Bootstrap Programme is a department-specific induction programme that has run for three years. Initially Bootstrap was a short programme used to help students get to know their peers and a few members of the lecturing staff. The programme was designed to provide students with a degree of comfort in their new learning environment. The induction programme has evolved into a programme that is also intended to help students to better understand what computer science is and how the department's research will enhance their degree.

Keywords

Induction, First Year Experience

1. BACKGROUND

At Durham University we are fortunate to have a college system that provides students both undergraduate and postgraduate with a small community within the larger institution. As new students arrive they are welcomed into an established community. Traditionally, departments took little time to acclimatise new students assuming that they would adjust once lectures and, in the case of sciences subjects, labs began. Until academic year 2006/7 our department's induction effort for new undergraduates were comprised of two events: a formal lecture to new students to outline first year course details, progression routes, and rules surrounding administrative issues for example assessment submission and illness; and an informal social where staff and new students chatted casually over drinks and snacks.

Results from: surveys conducted by the department and the Centre for Excellence in Teaching and Learning; Active Learning in Computing (ALiC); focus groups hosted by ALiC; and informal discussions with students; all indicated that students did not feel a sense of belonging to the department until level-two group-project was underway. As a consequence our department's level-one students often felt they were not sufficiently supported by the department. Additionally, students felt it took a long time to get to know a few peers and some students still felt isolated from their academic peers by the end of their first year of study. ALiC was concerned about these findings and wanted to find ways to help new students find a sense of belonging to the department as a learning community. We were aware that one of the reasons students valued the second-year group-project was that students finally got to know their academic peers. Students had the opportunity to work collaboratively on the group-project and to form groups to study cooperatively on formative and summative work not associated with the group-project [1]. As part of the remit of ALiC a new and innovated learning environment specifically designed to support group-work has been built. The environment, the Techno-Café, provides an ideal venue for any group-work [2]. The Techno-Café contains 10 individual booths in which teams can collaborate and share technology. ALiC exploited this environment, usually used for team work, to host an event designed to help students become acquainted with their peers by putting them into groups and assigning each group to a booth.

Cook et al [3] through work in the Student Transition and Retention (STAR) project have defined induction as a long process intended to help students through all phases of transition in their undergraduate experiences including the transitions from: secondary to tertiary education, work to tertiary education; lower to higher levels within the degree programme; from internship or work placements back into an academic setting; and finally

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from tertiary education to the next phase of the student's life, be that postgraduate study or employment.

They describe a process of progression that begins with an initial welcome programme but then continues throughout the students' experiences in Higher Education encompassing curriculum elements, and departmental and institutional support services. We do believe that our institution as a whole is working to achieve support for all the transition in the undergraduate experience of tertiary education. However, ALiC's goal here was to explore ways to increase the contribution of the department in supporting students in their transition from secondary to tertiary education.

2. DEPARTMENT SPECIFIC INDUCTION

It was decided that ALiC would organise and run a department-specific undergraduate induction event in academic year 2006/7 with two main goals: to help students get to know their peers, and to get students comfortable with working with peers to achieve a learning objective. ALiC would incorporate the two existing events into the schedule. In addition, ALiC would design and run social based events to encourage students to get to know each other and a team based event to demonstrate what could be achieved with peer support.

The new induction programme required that the students' timetable would accommodate the inclusion of three 2-hour sessions. As there are no labs in the first week of a new academic year ALiC was able to find the necessary space in the students' schedule.

2.1 Social Sessions

To facilitate the introduction of students to each other we put students into groups. We determined the groups ourselves. The intention was to ensure that students in the same college did not get assigned to the same group. To get students to get to know the members of their new group we organised two short icebreaker activities. First we instructed students to introduce themselves using a round-robin each student in turn had to give their first name and one fact about themselves. It was observed that about five minutes into the first icebreaker activity students abandoned the round-robin and began having conversations, usually about things they had discovered they had in common. As this was the goal we allowed a light conversational buzz to grow for another 5 minutes before moving on to the next icebreaker activity.

For the start of the second icebreaker activity and the remainder of the programme groups were referred to as teams. The term team infers a shared leadership [4] as well as kindle an atmosphere of friendly competition. The next icebreaker activity was the creation of a poster with images to represent each member of the team restricted to the category provided by ALiC. Categories were different for each team and covered areas where there would be a good number of images available free on the Internet for example birds. Each team developed a poster and then all teams wandered around the room looking and commenting on other teams' posters. This activity generated a lively discussion and was successful in getting students to move around room chat to students in other teams thereby becoming familiar with a few more of their peers.

At Durham University departments share centrally booked lecture theatres, labs and teaching rooms. Buildings are known by the department offices for example the Physics building or by the name of a famous person for example the Dawson building. Helping students to find their way around the campus is an essential part of any good induction programme [3]. The majority of lectures for science subjects are held on the Science Site campus which is the campus where the Techno-Café, and therefore the induction programme, is located. The final part of the first session was a treasure hunt. The treasure hunt was designed to guide the students around the science site to the lecture theatres and labs that they were scheduled to use in the first term. To start the treasure hunt teams had to correctly complete a short quiz containing questions about the university, the department's staff, and computer science. All answers were readily available on the web. Once a team completed the quiz they were given a list of questions about the campus to answer, a route to follow to find the answers and their start time was recorded. To ensure that everyone eventually comes back there must be a maximum time limit on the treasure hunt. As we encouraged a spirit of competition there needed to be prizes and time allocated to the prize giving ceremony. Teams found their way around the campus and individuals located useful landmarks.

2.2 Teamwork Sessions

The next two sessions required teams to compete by re-engineering an ailing business' use of technology. Staff had a good time developing the world's worst website. Early staff/student interaction will help students

make the transition to tertiary education [5]. To enable that interaction the level-one lecturing staff participated in the ailing business sessions firstly by adopting roles as employees of the ailing business who could be interviewed about the business. The first of the two sessions was scheduled for students to get their ideas together and the second session was when the teams presented their ideas to the customer. The presentations were done in the booths of the Techno-Café to ensure that all students would be relaxed and willing to participate in the presentation. It was decided that it was too early in the academic year to subject students to the stress of formal presentations. Though the presentations were strictly timetabled the staff and students' enthusiasm meant that the timetable was completely ignored. The goal of getting students to work in teams was clearly achieved. Staff enjoyed the role-play and the chance to get to know the students early in the academic year. Post-event focus groups indicated that students wanted to meet some staff but not too many of them.

2.3 Closing Survey

At the conclusion of the induction programme a survey was distributed to the students to elicit their views on the programme. As we had run over our time some students did have to leave to attend lectures for optional modules outside the department and were unable to complete the survey. The survey showed that students enjoyed the opportunity to get to know their peers and enjoyed the time spent in the induction programme. 36 of the 55 students completed the survey. 11 students strongly agreed with the statement "I enjoyed getting to know other students", 24 agreed and one was neutral. 3 students strongly agreed with the statement "I enjoyed induction", 26 agreed, and 7 were neutral. When asked for comments most students wrote statements of gratitude for the snacks and drinks provided throughout the programme. It was these comments that prompted the first reflection that perhaps the event had been too focused on fun and not sufficiently on the transition in to tertiary education.

3. THE BOOTSTRAP PROGRAMME

A good induction programme will have a positive impact on the students' first-year experience within the department [3]. Analysis of our induction programme and subsequent discussions between ALiC and first-year teaching staff in the department revealed that it would be desirable to have an induction programme which would go beyond the social aspects of helping students to get to know their peers and also concentrated on providing students with the opportunity to gain insights into both their individual learning style and the active learning pedagogy used in learning about Computer Science. The Bootstrap Programme emerged from the re-design of the initial induction programme and was delivered by ALiC the first week of the academic year 2007/8. Bootstrap was a richer induction programme and required the entire first week of the teaching allocation including lectures and labs. Bootstrap included the successful social session and teamwork sessions from the original induction programme. Added to the programme were a team programming session; a series of one-hour workshops called learning labs; and random surveys to allow staff to learn about the new cohort of students.

3.1 The Team Programming Session

In the team programming session each team was given two different graphical programming languages: a two dimensional and a three dimensional language. Teams were directed to compare the languages and then select one with which to develop a short program. The task gave those students in the team with strong programming skills the opportunity to display their skills while students who had not as yet learned to program were encouraged to participate in the comparison of the languages and then apply their creative ideas to the development of the graphical program. The adoption of "*NetSupport School*" classroom management software in the Techno-Café meant that we now had the ability to display the same object on all the Techno-Café's networked interactive-whiteboards simultaneously. Rather than walk around to see other teams' programmes, all of the programmes were collected and run a central computer that broadcast each program to the interactive whiteboards in each booth. The ability to show the work on all the interactive-whiteboards simultaneously made for a competitive and funny session. There were no clear indicators, in surveys or student achievement, of whether or not the group programming exercise aided in learning programming. However, observations in programming labs later in the academic year did indicate greater peer interaction. Results from post-event focus group confirmed that students found that the session did help them identify a few good programmers they felt sufficiently at ease with to ask for help.

3.2 The Learning Labs

ALiC developed three one hour workshops called Learning Labs. These short workshops were designed to encourage students to think about learning and how to go about learning successfully in Higher Education. Students participated in interactive lectures and exercises to explore: different learning styles; different

approaches to learning; and active learning techniques. In addition, to the workshops students were encouraged to discover their own learning style using a free on-line quiz available through the "VARK A guide to learning styles" and review the accompanying on-line aides "Study Without Tears" [6].

3.3 Closing Survey

At the conclusion of the Bootstrap programme a survey was distributed to the students to elicit their views on the programme. Fifty-two students completed the survey. To the statement "I enjoyed getting to know my fellow students" 18 students strongly agreed, 33 agreed and 1 disagreed. To the statement "I enjoyed the Bootstrap programme" 42 agreed with the statement, 8 disagreed and 2 strongly disagreed. One of the students who did not like the program did provide a comment "*coming in to Uni after months of doing nothing I just wanting to start to work*". When asked which session they enjoyed the most the responses were fairly evenly distributed between the treasure hunt, the programming session and the ailing business session. The general comments focused on ways we could improve the programme for example moving students into different teams more often to allow them to get to know more of their fellow students. There were a few negative comments about the learning labs. There was some hope that the content of the workshop would be better appreciated after students had struggled there way through a few weeks of lectures and labs. However, though the workshop slides remained available for the remainder of the academic year and they were not accessed by any of the students.

4. EMBEDDING THE BOOTSTRAP PROGRAMME

It is the remit of the CETL to embed in departments and institutions those practices and concepts that have been shown to enhanced the teaching and learning experience of students and staff. The Bootstrap Programme was recommended and accepted for embedding in the department in academic year 2008/9. ALiC staff would play a role in the Bootstrap programme but instead of running the programme their role would be equivalent to that of any member of the department in the next iteration of the Bootstrap programme. Embedding the programme in the department's usual practice did not mean that the programme would remain unchanged. The programme was adapted to support current department's initiatives. Most Computer Science departments struggle with getting a new intake of students to grasp what Computer Science is [7]. Students are rarely aware of the breadth of the subject and do not comprehend the research areas under investigation by staff. The department decided to make changes to the Bootstrap Programme that would help students to better understand what computer science is and how the department's research will enhance their degree.

4.1 Changes to the Programme

The treasure hunt that was designed help students find their way around the campus was replaced by a team-quiz that was designed to demonstrate the breadth of computer science as an area of research with an emphasis on those topics that would be covered in the level-one syllabus. The teams were very competitive and it was a lively session. There was no proof that the students had grasped the objective of the quiz. There was a competitive atmosphere to the quiz where the focus was on winning rather than learning.

ALiC had determined that the scenario being used in the ailing business sessions had been used enough and either a new scenario would have to be developed or the two sessions would have to be replaced by new activities. The department decided to replace the two sessions with new activities. To increase students' awareness and understanding of the research being undertaken in the department the staff were invited to showcase their research one afternoon during the Bootstrap Programme. Staff either gave short talks or demonstrations. The Technology Enhanced Learning (TEL) research group demonstrations proved to be the most popular because students could if they chose become involved in the research. TEL provided tours of their labs and then gave students PDAs with the most recent version of Technology Enhanced Campus (TEC). TEC is a research project being undertaken to discover means of using mobile technologies to support the collection and distribution location-specific information that will be of interest to the specific receiver. Students were encouraged to take a PDA then to try out the applications as they were sent to them.

In 2008 ALiC hosted a series of focus groups with final-year students. The focus groups were designed to give students an opportunity to reflect on their experiences as undergraduate in the department. One of the insights gleaned from the focus groups was that students believed their initial fear of the mathematical components of the degree proved groundless. The students believed that staff, particularly those who taught and researched in Computation Theory should make more of an effort at the start of the degree programme to demonstrate to students how the mathematics was learnable and not to be feared. ALiC passed the recommendations on to staff researching in the Theory of Computation. The staff rose to the challenge and

developed a new session intended to introduce students to relevant areas of mathematics by engaging the teams in a series of mathematical based tasks. The session proved lively with staff working with individual teams to raise the students' awareness of discrete mathematics relevant to their undergraduate degree. The session was further supported by the research talks from the Theory of Computation researches in the research session of the programme.

5. THE FUTURE

5.1 The Bootstrap Programme

The most readily observable benefit of the Bootstrap Programme has been the earlier interaction between students and their peers in first-year labs where they can be seen working together and only requesting help from staff when their group of peers have exhausted their knowledge and skill. There has also been a rise in the number of questions asked by students in the first-year lectures. Additionally, informal discussions with students point to a sense of belonging to the department surfacing in the first year of their degree. There has been no attempt to formally measure whether or not there has been an improvement to students' understanding of computer science as a discipline and a research area. However, there is a general feeling among staff responsible for lecturing on first-year modules is that the Bootstrap Programme is worth running. There are now changes expected to the Bootstrap Programme for academic year 2009/10.

5.2 Postgraduate Induction Programme

At present the Computer Science department runs three one-year Taught Masters programmes. The department has always run a department-specific induction programme for postgraduates enrolled on the programmes. The focus of the induction programme is to ensure that the department delivers to the postgraduates all the information surrounding the academic and administrative rules of our institution. In academic year 2008/9 ALiC reviewed copies of presentation slides and handout from previous years programmes and determined that the amount of information delivered to the postgraduates was prohibitive. ALiC determined that students need to be made aware of the categories of information available to them and the department then needed to provide a central store for the information. An area on the University's virtual learning environment (VLE) was made available for storing and accessing information usually given to postgraduates. The induction programme for 2008/9 was altered to provide postgraduates with the knowledge about where to find information and detailed information on key issues for example plagiarism and individual project work. To complete the review a member of ALiC participated in the 2008/9 induction programme. Recommendations based on the participation have been presented to the Director for Postgraduate Studies. These recommendations include giving the postgraduates helping the postgraduates feel at ease with lecturing staff by arranging for more of the lecturing staff to participate in the induction programme. Additionally, it has been recommended that the department acknowledge that the postgraduates will have difficulty remembering where to find administrative information until they have a problem for example they need an extension because of illness. It is therefore recommended that the information be organised by problem, what to do if you are ill, as well as solutions (extension request forms). The altered postgraduate induction programme will run in academic year 2009/10. Further reviews are being considered.

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